

ROBUST WORD-SPOTTING SYSTEM USING AN INTELLIGIBILITY  
CRITERION FOR RELIABLE KEYWORD DETECTION UNDER  
ADVERSE AND UNKNOWN NOISY ENVIRONMENTS

ABSTRACT

A method and system for spotting words in a speech signal having adverse and unknown noisy environments is provided. The method removes the dynamic bias introduced by the environment (i.e., noise and channel effect) that is specific to each word of the lexicon. The method includes the step of generating a first recognition score based on the speech signal and a lexicon entry for a word. The recognition score tracks an absolute likelihood that the word is in the speech signal. A background score is estimated based on the first recognition score. The method further provides for calculating a confidence score based on a matching ratio between a minimum recognition value and the background score. The method and system can be implemented for any number of words, depending upon the application. The confidence scores therefore track noise-corrected likelihoods that the words are in the speech signal.